Nature and Dimensions of the Future Battlefield as Visualised by Present Military Leaders

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Abstract

*Background***:** Military leadership is not inherent; it depends upon traits that can be developed and skills that can be learned. The leadership of the future is being created now and will mature over the next two decades. What we need is to visualise the future battlefield along with its dimensions, so that a futuristic leadership model framework can be conceived and deployed in our academies to create the best military leaders in the world.

Purpose: To explore the nature and dimensions of the future battlefield as visualised by present military leaders.

*Method***:** A descriptive research design was used in this quantitative study, wherein a total of 443 serving defence officers participated.

Results: Information dominance has been considered the most important dimension, followed by battle-space transparency, psychological operations, hybrid warfare and, finally, non-linear operations.

Discussion and Conclusion. The nation needs to acquire capabilities to achieve supremacy in the domain of information warfare. These capabilities need to be developed in-house and created indigenously for the obvious reasons. Adequate investment in this field should be made not only for the technology R & D but also in human capital.

Keywords: *Hybrid Warfare, Information Dominance, Psychological Operations, Battle-Space Transparency, Non-Linear Operations, Military Leaders*

Introduction

The volatilities and uncertainties of the global security environment raise timely and important questions about the future of humanity's oldest occupation: war (Artur Gruszczak & Sebastian Kaempf, n.d.). A country's existence as an independent entity in the present and future world, its ability to protect its territorial integrity and interests from possible threats, largely depends on its readiness for armed conflicts, and this, in turn, requires analysing both past and current wars and predicting the forms and methods of future military operations (Hasanov et al., 2024).

The future of warfare has become one of the most hotly debated topics amongst academics, militaries, and policy makers alike. Previously held assumptions about war's nature, logic, and shape are being questioned with a new urgency (Artur Gruszczak & Sebastian Kaempf, n.d.). While war hasn't changed for thousands of years, warfare, specifically, the technology used to conduct war, is constantly changing. It evolved from soldiers with broadswords and bows, to soldiers on horseback with repeating rifles to soldiers with machine guns, driving tanks, and calling in airstrikes from drones. The current security environment is characterised by rapid changes, unpredictable instability, and complexity. Wars in this modern age are no longer fought on conventional battlefields but asymmetrically over the digital world, cyberspace, social media, etc.(Hasanov et al., 2024). Strange wars will also include confrontations in diplomacy, internal civil conflicts, behavioural, informational, financial, economic, and technological battles, in addition to armed engagements on conventional battlefields (A.S. BRYCHKOV, 2019).

Significance of the study

New and emerging technologies are bound to reshape the nature, intensity and composition of all wars to come. An obtrusive evolution is taking place in the field of defence technology, which is expected to completely transform the future battlefield. This calls for an understanding of the dynamics of the future battlefield, visualising the nature and dimensions of it, which would in turn allow a nation to achieve operational readiness more effectively.

Literature Review

Dimensions of Future Battlefield

Hybrid warfare

In the future, it is predicted that the conflict of interests will continue for various reasons, and there will be new wars (Hasanov et al., 2024). According to several military analysts, armies will fight opponents who are members of unidentified alliances and unknown foes (Hasanov et al., 2024). Hybrid warfare theorises changes in contemporary warfare and contains key assumptions about the 4th and 5th generations of warfare. In those types of warfare, economic, political and social factors are used to break the opposing leadership. In this situation, military superiority alone is not helpful, and knowledge of local culture and history is essential (Hasanov et al., 2024). Thus, incorporating cultural, social, legal, psychological and moral dimensions into the war may make the wider use of armed forces redundant (Iskandarov & Gawliczek, 2021).

Samuel Phillips Huntington, a prominent US political scientist, affirmed that conflicts in this new world would not be based on ideology anymore, but solely on culture. In Huntington's words:

> *It is my hypothesis that the fundamental source of conflict in this new world will not be primarily ideological or primarily economic. The great divisions among humankind and the dominating source of conflict will be cultural* (Clara Assumpção, n.d.).

The U.S. Army Combined Arms Centre Threats Division defines the hybrid threat as a diverse, dynamic combination of regular forces, irregular forces, and criminal elements unified to achieve mutually beneficial effects. The term "hybrid" is used to capture the essence of the complexity of war, the multiplicity of actors involved and the blurring between traditional categories of conflict. Hybrid threats are innovative, adaptive, globally connected, networked, and embedded in local populations. They can possess a wide range of old, adapted, and advanced technologies-possibly including weapons of mass destruction.

Information dominance

A key concept in hybrid warfare is the exploitation of emerging information technology, which allows non-state military actors to undermine the state's will by affecting the decision makers and the population through the globalised and networked media (Hasanov et al., 2024). The transmission and reception of real-time data over a large area allows network users to monitor the current activities of all friendly and enemy units according to their authorisation levels on an electronic map or screen, and to intervene directly in battlefield

activities when necessary(JONJO ROBB, n.d.).

In our age, information plays an important role against the backdrop of relentless strategic competition between states. Thanks to the revolutionary changes in information technology, power based on information (knowledge) has been added to the power system based on material wealth and physical force. Thus, the first condition for success in the modern world is to obtain important information on time, process it quickly, and make the right decision (Hasanov et al., 2024).

Non-linear operations

In new circumstances, the superiority is achieved not by concentrating forces and means in a decisive direction with the manoeuvre of the troops, but by precise and devastating blows from a distance, without coming into close contact with the enemy. Modern warfare has shown that it is possible to inflict heavy casualties on enemy forces, disable their equipment, and thereby debilitate them without direct contact from a long distance. In addition, the rapid development of artificial intelligence and high technologies and the significant expansion of their scope paves the way for the creation of autonomously controlled weapon systems and special equipment with greater capabilities in the future (Hasanov et al., 2024).

Drone swarms allow militaries to generate and manage large numbers of drones. Drone swarms can consist of thousands of drones to overwhelm adversary defences. Drone swarms can be used in a broad range of missions, from undersea warfare to countering anti-access/area-denial and amphibious warfare (Rajagopalan & Patil, n.d.).

Battlefield Transparency

In the future, the soldier leading the fight will be part of the network connected to computers; his physical health or his mind will be monitored. The computer will estimate the state of weapons and ammunition, calculate its contribution to the combat achievements of the subdivision, and give them orders. The technique will provide a soldier with far better information about the situation in the area of the task, as well as more protection and more endurance (Krzton, 2019).

Transparency of the battlefield would resolve the age-old dilemma of military commanders to know what is on the "other side of the hill". Imagine using a dynamic directional antenna that tracks the soldier's antenna and concentrates its radiative power on that location (PATRICK TUCKER, n.d.). It is important to note that imperfect information about the opponent's resolve or strength is a source of conflict that does not require any violation of common knowledge of rationality(Jackson & Morelli, 2009) .

Artificial intelligence

Integrating artificial intelligence into military mini-robotics and drones will allow them to be deployed en masse on the battlefield and strike autonomously without operator intervention. Due to their small size, it will be difficult to detect and destroy them. At the same time, mini-robotics and drones will operate both independently and in close contact with each other during the execution of the mission, and will have the ability to determine the order of distribution and destruction of targets among themselves (Hasanov et al., 2024). Artificial intelligence's integration into military strategies signifies a paradigm shift. Its capacity to process vast amounts of data, facilitate rapid decision-making, and enhance operational efficiency introduces both unprecedented opportunities and challenges (Eleonore Daxhelet, n.d.).

Cyber warfare

In an era defined by interconnectedness and digital dependency, the emergence of cyberwarfare has introduced a new dimension of conflict where battles are fought not only on physical battlefields but in the vast expanse of cyberspace, too (Eleonore Daxhelet, n.d.).

Psychological operations

Words can be more crucial and consequential than traditional weapons or even modern physical warfare in war. They can be employed to achieve peace and prevent conflicts, but sometimes, they can deceive and destroy a foe. The psychology of words can be used to facilitate operational and strategic endeavours in wars and make them more cost-effective in terms of lives and money (Alosman & Sawalmeh, 2023).

Psychological operations, inherently linked with information warfare, are poised to emerge as decisive weapons of future wars and have the potential to become force multipliers if exploited in the right manner. The supported commander must integrate and synchronise psychological operations into a cohesive military plan (Army Field Manual, 2005).

Research Methodology

Research aim

This research aimed to explore the nature and dimensions of the future battlefield as visualised by present military leaders.

Research design

A sample of 443 officers was selected who had participated in the study. The officers were randomly selected from a wide cross-section of seniority and experience, representing a judicious mix of junior, middle and senior level leadership.

A closed-ended questionnaire was used for the collection of data. The Likert Scale was used to indicate the level of agreement with the given statements on a five-point scale, ranging from "Strongly Disagree" on one end to "Strongly Agree" on the other, with "Neither Agree nor Disagree" in the middle.

Although future battlefields will have many dimensions, only the following five major dimensions were considered in the study to ascertain their inter-se significance. Cyber warfare, which is an important component of military strategy and a platform for attack, was considered as a part of information warfare. The AI technology, which is yet to mature, was not considered.

Information dominance
Psychological operations
Battle-space transparency
Non-linear operations
Hybrid warfare

The responses of the participants were sought based on the following five statements: -

1	Information dominance would be a key battle-winning factor in future
2	Psychological operations will be applied as potential force multipliers in future warfare
3	Battle-space transparency will be a prerequisite before joining any operation
4	Non-linear operations will be the norm rather than an exception in future
5	Hybrid warfare will be a more visible form of conflict in the coming years

Data Analysis and Results

The results of the study were as follows: -

	1	2	3	4	5
Mean	4.5125	4.237	4.269	4.108	4.147
Std Error	0.0386	0.036	0.049	0.044	0.043
Median	5.0000	4.000	4.000	4.000	4.000
Mode	5.0000	4.000	5.000	4.000	4.000
Std Deviation	0.6451	0.607	0.811	0.732	0.722

Analysis of Data

Information dominance has been considered the most important dimension, followed by battle-space transparency, psychological operations, hybrid warfare and, finally, non-linear operations.

Discussion

The future battlefield will be characterised by all five dimensions as mentioned above, and they must be considered during the planning phase before joining a war. However, those dimensions have their inter-se importance, and the same needs to be understood by future military leaders. Based on the above study, among them, information dominance will remain the most important dimension. A similar prediction was echoed by many senior military leaders, who had opined that information warfare would have the most profound effects on the conduct of warfare, both at strategic and tactical levels.

The nation needs to acquire capabilities to achieve supremacy in the domain of information warfare. These capabilities need to be developed in-house and created indigenously for the obvious reasons. Adequate investment in this field should be made not only for the technology R & D but also in human capital. In an information-rich environment, what matters may remain buried in noise and ambiguity. Leaders, at every level, will be constrained by their training and cognitive ability in what they can absorb, analyse and decipher. The denser the fog of war, the more mental fatigue, the more vulnerable the leaders would become to both inadvertent misunderstanding and deliberate deception.

Conclusion

Political limitation, friction, and fog are not artefacts of history, but rather conditions embedded in the fabric of war. 2500 years of history confirm that ambiguity, miscalculation, incompetence, and above all, chance will continue to dominate the conduct of war. In the end, the intangible attributes of agility, morale, and mental robustness of the leaders at the various levels will determine who wins and who loses. Future leaders will have to be agile and adaptive when subjected to an overwhelming amount of information.

References

Alosman, M. I. M., & Sawalmeh, M. (2023). Psychological Operations and Their Ethical Implications in Phil Klay's Redeployment. *Jordan Journal of Modern Languages and Literatures*, *15*(4). https://doi.org/10.47012/jjmll.15.4.16

Army Field Manual, U. F. (2005). *Psychological Operations Psychological Operations Contents*.

Artur Gruszczak, & Sebastian Kaempf. (n.d.). *ROUTLEDGE HANDBOOK OF THE FUTURE OF WARFARE*.

A.S. BRYCHKOV. (2019). The Hybrid Nature of Future Wars and Armed Conflicts. *Military Thought*, *28*(002), 20–32. https://doi.org/10.21557/MTH.54208774

Clara Assumpção. (n.d.). *Is Huntington's "Clash of Civilizations" a Self-fulfilled Prophecy? Written by Clara Assumpção*. https://www.e-ir.info/2020/01/29/is-huntingtons-clash-of-civilizations-a-self-fulfilled-prophecy/

Eleonore Daxhelet. (n.d.). *Artificial Intelligence and the Future of Warfare FINABEL-The European Land Force Commanders Organisation Written by Éléonore Daxhelet*. www.finabel.org

Hasanov, A., Tahirov, R., & Iskandarov, K. (2024). The future of warfare. Anticipated changes in military trends. *Journal of Scientific Papers "Social Development and Security," 14*(5), 1–18. https://doi.org/10.33445/sds.2024.14.5.1

Iskandarov, K., & Gawliczek, P. (2021). Characteristic features of the second Karabakh war. *Journal of Scientific Papers "Social Development and Security," 11*(3), 30–40. https://doi.org/10.33445/sds.2021.11.3.3

Jackson, M. O., & Morelli, M. (2009). *The Reasons for Wars-an Updated Survey*. http://www.stanford.edu/~jacksonmhttp://www.columbia.edu/cu/polisci/fac-bios/morelli/faculty.html

JONJO ROBB. (n.d.). *Modern Militaries and a Network Centric Warfare Approach Written by Jonjo Robb Modern Militaries and a Network Centric Warfare Approach To What Extent Do Modern Military Operations Require a Network Centric Warfare Approach?* https://www.e-ir.info/2014/01/09/modern-militaries-and-a-network-centric-warfare-approach/

Krzton, W. (2019). Armament System of the Future Battlefield Being a Challenge for Security. *Humanities and Social Sciences*, *7*(5), 165. https://doi.org/10.11648/j.hss.20190705.13

PATRICK TUCKER. (n.d.). *Battlefield 2050 How Today's Cutting-Edge Technologies Are Shaping the Future of Warfare*.

Rajagopalan, R. P., & Patil, S. (n.d.). *Future Warfare and Critical Technologies: Evolving Tactics and Strategies*.